

DIPTERA REARED FROM *DYSOXYLUM GAUDICHAUDIANUM* (JUSS.) MIQ. AT IRON RANGE, NORTHERN QUEENSLAND

GARY DODSON and GREGORY DANIELS

Department of Entomology, University of Queensland, St. Lucia, Qld 4067.

Abstract

Six species of Diptera representing the families Tephritidae, Stratiomyidae, Xylomyidae and Milichiidae were reared from the decomposing trunk of a rainforest tree, *Dysoxylum gaudichaudianum* (Juss.) Miq., from northern Queensland.

While conducting behavioural studies of the tephritid fly *Phytalmia mouldsi* McAlpine and Schneider at Iron Range, northern Queensland, several species of Diptera were observed visiting a fallen rainforest tree, *Dysoxylum gaudichaudianum* (Juss.) Miq. (Meliaceae). Six species of Diptera were subsequently reared in the laboratory, from sections of the tree transported to Brisbane.

The trunk of the tree lay on the ground from 26. xi. - 11. xii. 86 in rainforest near the West Claudie River, Cape York Peninsula. The tree was approximately 14 m long and 12 cm in diameter. Sections of the trunk were transported in plastic bags to the Department of Entomology, University of Queensland, St. Lucia, arriving on 20. xii. 86. They were kept in an air conditioned room until 29. xii. 86, when they were placed in nylon screen cages in a controlled environment room at 28°C (\pm 2°C) and ca 75% RH. Six species of Diptera emerged from these logs over the next 40 days. The bag containing the logs was left outdoors for part of one day and overnight before it was held indoors. This was the only period after removal from the rainforest that the logs may have been susceptible to ovipositing insects (the bag did have some small tears). Of the subsequently reared species, only *Hermetia illucens* (Linnaeus) and *Desmometopa inaurata* Lamb are known or likely to occur in southeastern Queensland.

Records

The following species were bred from these logs:

(a) Tephritidae

Phytalmia mouldsi McAlpine and Schneider, 206 males, 165 females; emerged 11-i-1987 to 19-i-1987.

Genus near *Dirioxa*, sp.nr. *australina* Hendel; 2 males, 1 female; emerged 10-i-1987 to 15-i-1987. (Note: specimens were identified as *D. australina* by E. Hardy (pers. comm.). D. McAlpine (pers. comm.) believes the specimens represent an undescribed genus and species near *Dirioxa*.)

These represent the first host records for these species and add to the few tephritids known to breed in decaying vegetative (nonfruit) materials. Dr. H. Roberts (pers. comm.) has reared *Phytalmia alcicornis* (Saunders) and *Dacopsis flava* (Edwards) from newly felled *Dysoxylum gaudichaudianum* and *P. cervicornis* (Saunders) from felled *Xanthophyllum* sp. (Xanthophyllaceae) trees, all in Papua New Guinea, and *Diarrhegma modestum* Fab. has been reported from decaying wood in India (Hardy 1986). Species within the genera *Afrocneros* Bezzi and *Ocnarioxa* Speiser have been reared from the stems of *Cussonia* (Araliaceae), but apparently infest the trees while they are still alive (Munro 1967).

(b) Stratiomyidae and Xylomyidae

Hermetia illucens (Linnaeus) (Stratiomyidae); 5 males; emerged 31. i. 87 to 1. ii. 87.

Saldubela margaritifera Lindner (Stratiomyidae); 3 males, 1 female; emerged 4. ii. 87 to 8. ii. 87.

Solva laeta Daniels (Xylomyidae); 16 males, 18 females; emerged 10. i. 87 to 20. i. 87.

The Stratiomyidae and the Xylomyidae are the only orthorrhaphous Diptera which pupate within the last larval skin (the puparium), as is typical of the Cyclorrhapha. Within the Stratiomyidae, adults emerged from the pupal case which remains entirely within the puparium. In contrast, pupae of the Xylomyidae partially emerge from the puparium prior to adult emergence, leaving the empty pupal case protruding from the puparium or sometimes completely detached (Rozkosny 1973). *S. laeta* exhibited an extreme form of the latter pattern. In all of more than 25 observed emergences, the pupae exited completely from the puparium prior to adult emergence and in most cases the pupal case was actually lying on the soil surface while the puparium remained under the bark.

Hermetia illucens has been recorded from a wide variety of decaying organic material (McFadden 1967). These are the first host records for both *S. margaritifera* and *S. laeta*.

(c) Milichiidae

Desmometopa inaurata Lamb; 6 females; emerged 20. i. 87 to 31. i. 87.

Species of the genus *Desmometopa* Loew including *D. inaurata* have been bred from a wide variety of decaying plant and animal material and manure (Sabrosky 1983). Milichiids in the genus *Milichiella* Giglio-Tos have been reared from rotting wood at Warrawee, New South Wales (D. McAlpine, personal communication).

Acknowledgments

We thank Margaret Schneider and Jill Jereb for help with the collection and transport of the materials. Drs. D.E. Hardy and D. McAlpine identified the specimens near *Dirioxa* sp. and D. McAlpine also identified *Desmometopa*. Vouchers of all fly species have been placed in the University of Queensland Insect Collection. The species of tree was identified by Dr. L. Jessup and voucher material was deposited at the Department of Primary Industries, Indooroopilly, Queensland.

References

- HARDY, D.E. 1986. Fruit flies of the subtribe Acanthonevrina of Indonesia, New Guinea, and the Bismarck and Solomon Islands. *Pacific Insects Monograph* 42: 1-42.
- McFADDEN, M.W. 1967. Soldier fly larvae in America north of Mexico. *Proceedings of the U.S. National Museum* 121: 1-72.
- MUNRO, H.K. 1967. Fruitflies allied to species of *Afrocneros* and *Ocnarioxa* that infest *Cussonia*, the umbrella tree or kiepersol (Araliaceae) (Diptera: Trypetidae). *Annals of the Natal Museum* 18: 571-594.
- ROZKOSNY, R. 1973. The Stratiomyoidea (Diptera) of Fennoscandia and Denmark. *Fauna Entomologica Scandinavica* 1: 1-150.
- SABROSKY, C.W. 1983. 'A synopsis of the world species of *Desmometopa* Loew (Diptera, Milichiidae).' *Contributions of the American Entomological Institute* 19 (8): 1-69 pp.